ThermalKEM

TO: Generators/Service Companies

SUBJECT: Revised Generator Restricted Waste Notification

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The attached Notification Form has been revised to meet new Federal Regulations due to be issued on August 8, 1988 banning certain wastes from land disposal.

This form serves to meet mandatory generator restricted waste notification requirements to ThermalKEM, Inc. of Rock Hill, South Carolina, that the listed waste code(s) shipped with the manifest may contain wastes that are restricted from land disposal under 40 CFR Part 268. This designation is a responsibility of the generator and is arrived at by specific analysis of knowledge of the waste.

As such, notification as required under 40 CFR Part 268.7 (a) (1) (ii) is also served to ThermalKEM that these same wastes are required to be treated to meet the treatment standards of 40 CFR Part 268 Subpart D.

Attachment

American NuKEM Corp.
ThermalKEM Inc.
CyanoKEM Inc.

Generator Restricted Waste Notification
Land Disposal Restrictions Compliance

This form meets generator restricted waste notification to either ThermalKEM Inc. of Rock Hill, SC or CyanoKEM Inc. of Detroit, MI as required by 40 CFR Part 268.7.

Generator Name.....:_____

EPA & State Hazardous Waste Number(s):_____

_____

EPA or State ID Number.....:_____

Manifest Number.....:_____

I. <u>RESTRICTED WASTE NOTIFICATION</u>
(Corresponding Treatment Standard(s))

Certain wastes have been restricted from land disposal effective August 8 ,1988 but are treatable at:

ThermaKEM - See Table I, IIA, and IIB, and III
CyanoKEM - See Table IV and IV

for lists of restricted waste . If your waste is classified as any of those in Table I or IIA and IIB, please check the following certification statement below, and then circle the appropriate code(s) in the appropriate table(s).

____I notify that I personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that the waste does not comply with the treatment standards specified in 40 CFR 268, Subpart D and all applicable prohibitions setforth in 40 CFR 268.32 or RCRA Section 3004(d). Therefore the waste must be treated by the appropriate regulatory treatment standard or in such a manner which renders it non-liquid by chemical fixation or solidification prior to land disposal.

Please circle the corresponding treatment standard(s) identified on the attached list(s) found on Table I, IIA, or IIB for ThermalKEM and IV for CyanoKEM. Please note, this list of identified applicable standards must be attached to this sheet to meet the requirements of the law, 40 CFR 268.7 (a) (1) (ii).

II. WASTE SPECIFIC PROHIBITIONS (California list wastes) -

Additional notification is required under 40 CFR Part 268.32 (j) to state specific characteristics for which land disposal is prohibited. If your waste contains any of these constituents or meets any of these properties, please check below.

_____1) pH $\leq$ 2.0
_____2) PCB $\geq$ 50 ppm
_____3) Halogenated organic carbon, (HOC's) greater than 1000 mg/l
_____4) Liquids or any free liquids associated with any solid or sludge, containing the following metals or compounds of these metals:

_____ Arsenic (As) $\geq$ 500 mg/l
_____ Cadmium (Cd) $\geq$ 100 mg/l
_____ Chromium (Cr VI) $\geq$ 500 mg/l
_____ Lead (Pb) $\geq$ 500 mg/l
_____ Free Cyanides $\geq$ 1000 mg/l
_____ Mercury (Hg) $\geq$ 210 mg/l
_____ Nickel (Ni) $\geq$ 134 mg/l
_____ Selenium (Se) $\geq$ 100 mg/l
_____ Thallium (Tl) $\geq$ 130 mg/l

III. SOFT HAMMER RESTRICTIONS

If your waste is one of the following codes listed in Table III for ThermalKEM or Table V for CyanoKEM please check the flowing notification statement:

____I certify under penalty of law that the requirements of 40 CFR 268.8 (a) (1) have been met and that I have contracted to treat my waste (or will otherwise provide treatment) by the practically available technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Circle the appropriate waste code in Table III for ThermalKEM or Table V for CyanoKEM'.

American NuKEM Corp.
ThermalKEM Inc.
CyanoKEM Inc.

IV. WASTE ANALYSIS - Waste Analysis Data Available? Yes ___ No _
If Yes, please attach a copy as per 40 CFR Part 268.7 (a) (1) (iv).

V. UNRESTRICTED WASTE NOTIFICATION -

If waste does not fall into the categories listed above, Items I, II, III, then please check the following notification statement.

___ I notify that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this notification that the waste is not restricted as specified in 40 CFR 268, Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA 3004(d).

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Signature :_____ Date :_____

Print Name:_____ Title:_____

ONLY NOTIFICATIONS WITH ORIGINAL SIGNATURE WILL BE ACCEPTED!

F001, F002, F003, F004, F005 Solvent Restrictions

This restricted waste category is banned from land disposal under 40 CFR 268.30 and is subject to one or more treatment standards under 40 CFR 268 D. Complete information in the following Table I by circling the appropriate treatment standard(s).

TABLE I

	Constituent	Concentration Standard in Extract, mg/l
1.	Acetone	0.59
2.	n-Butyl Alcohol	5.00
3.	Carbon Disulfide	4.81
4.	Carbon Tetrachloride	0.96
5.	Chlorobenzene	0.05
6.	Cresols (and cresylic acid)	0.75
7.	Cyclohexanone	0.75
8.	1,2-Dichlorobenzene	0.125
9.	Ethyl acetate	0.75
10.	Ethylbenzene	0.053
11.	Ethyl ether	0.75
12.	Isobutanol	5.00
13.	Methanol	0.75
14.	Methylene chloride	0.96
15.	Methyl ethyl ketone	0.75
16.	Methyl isobutyl ketone	0.33
17.	Nitrobenzene	0.125
18.	Pyridine	0.33
19.	Tetrachloroethylene	0.05
20.	Toluene	0.33
21.	1,1,1-Trichloroethane	0.41
22.	1,1,2-Trichloro-1,2,2-Trifluoroethane	0.96
23.	Trichloroethylene	0.091
24.	Trichlorofuoromethane	0.96
25.	Xylene	0.15

TREATMENT STANDARDS FOR LAND BANNED RESTRICTED WASTES

TABLE IIA
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	Total Composition, mg/l	F006	K001	K016	K018	K019	K020	K022	K024	K030	K037	K046	K048	K049	K050	K051	K052	K062	K086	K087	K101	K102	K103	K104
1	1,1 Dichloroethane	---	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2	1,1,1 Trichloroethane	---	---	---	6.0	6.0	---	---	---	---	---	---	---	---	---	---	---	---	0.044	---	---	---	---	---
3	1,2 Dichlorobenzene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.49	---	---	---	---	---
4	1,2 Dichloroethane	---	---	---	6.0	6.0	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
5	1,1,2,2 Trichloroethane	---	---	---	---	---	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6	1,2,4 Trichlorobenzene	---	---	---	---	19	---	---	---	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---
7	1,2,4,5 Tetrachlorobenzene	---	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---	---	---	---	---	---	---
8	2,3 Dinitrophenol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5.6	5.6
9	Acenaphthalene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.4	---	---	---	---
10	Acetone	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
11	Acetophenone	---	---	---	---	---	---	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12	Anthracene	---	---	---	---	---	---	---	---	---	---	---	---	6.2	---	6.2	---	---	---	---	---	---	---	---
13	Aniline	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5.6	5.6
14	Benzene	---	---	---	---	---	---	---	---	---	---	---	---	9.5	---	9.5	9.5	---	---	0.071	---	---	6.0	6.0
15	Benzo(a)anthracene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.4	---	---	---	---	---	---	---	---
16	Benzo(a)pyrene	---	---	---	---	---	---	---	---	---	---	---	---	0.84	0.84	0.84	0.84	---	---	---	---	---	---	---
17	Bis(2-chloroethyl)ether	---	---	---	---	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
18	Bis(2-ethylhexyl)phthalate	---	---	---	---	---	---	---	---	---	---	---	37	37	---	37	---	---	0.49	---	---	---	---	---
19	Chlorobenzene	---	---	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20	Chloroethane	---	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
21	Chloroform	---	---	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22	Chrysene	---	---	---	---	---	---	---	---	---	---	---	2.2	2.2	---	2.2	---	---	---	3.4	---	---	---	---
23	Cyanide	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
24	Cyanides (total)	---	---	---	---	---	---	---	---	---	---	---	1.8	1.8	1.8	1.8	1.8	---	---	---	---	---	---	1.8
25	Cyclohexanone	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.49	---	---	---	---	---
26	Di-n-butyl phthalate	---	---	---	---	---	---	---	---	---	---	---	4.2	---	---	4.2	---	---	---	---	---	---	---	---
27	Disulfoton	---	---	---	---	---	---	---	---	---	0.1	---	---	---	---	---	---	---	---	---	---	---	---	---
28	Ethyl Acetate	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
29	Ethylbenzene	---	---	---	---	---	---	---	---	---	---	---	67	67	---	67	67	---	0.031	---	---	---	---	---
30	Fluoranthene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.4	---	---	---	---
31	Hexachlorobenzene	---	---	28	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
32	Hexachlorobutadiene	---	---	5.6	5.6	---	---	---	---	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
33	Hexachlorocyclopentadiene	---	---	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
34	Hexachloroethane	---	---	28	28	28	---	---	---	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---
35	Hexachloropropene	---	---	---	---	---	---	---	---	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---
36	Indeno (1,2,3-cd) pyrene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.4	---	---	---	---
37	Methanol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
38	Methyl ethyl ketone	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
39	Methyl isobutyl ketone	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
40	Methylene chloride	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.037	---	---	---	---	---

TREATMENT STANDARDS FOR LAND BANNED RESTRICTED WASTES

TABLE IIB
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		F006	K001	K016	K018	K019	K020	K022	K024	K030	K037	K046	K048	K049	K050	K051	K052	K062	K086	K087	K101	K102	K103	K104
41	n-Butyl Alcohol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.37	---	---	---	---	---
42	Naphthalene	---	8.0	---	---	5.6	---	---	---	---	---	---	Res	Res	---	Res	Res	---	0.49	3.4	---	---	---	---
43	Nitrobenzene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.49	---	---	---	5.6	5.6[1]
44	o-Cresol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.2	---	---	---	---	---	---	---
45	Ortho-Nitroaniline	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14	---	---	---
46	Ortho-Nitrophenol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.84	---	---	---	---	13	---	---
47	p-Cresol	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.90	---	---	---	---	---	---	---
48	Pentachlorobenzene	---	---	---	---	---	---	---	---	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---
49	Pentachloroethane	---	---	---	5.6	---	---	---	---	5.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---
50	Pentachlorophenol	---	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
51	Phenanthrene	---	8.0	---	---	5.6	---	---	---	---	---	---	7.7	7.7	---	7.7	7.7	---	---	3.4	---	---	---	---
52	Phenol	---	---	---	---	---	---	12	---	---	---	---	2.7	2.7	2.7	2.7	2.7	---	---	---	---	---	5.6	5.6
53	Phthalic acid	---	---	---	---	---	---	---	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
54	Pyrene	---	7.3	---	---	---	---	---	---	---	---	---	2.0	2.0	---	2.0	---	---	---	---	---	---	---	---
55	Tetrachloroethane	---	---	6.0	---	---	6.0	---	---	6.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---
56	Toluene	---	0.14	---	---	---	---	0.034	---	---	28	---	9.5	9.5	---	9.5	9.5	---	0.031	0.65	---	---	---	---
57	Trichloroethylene	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.031	---	---	---	---	---
58	Xylene	---	0.16	---	---	---	---	---	---	---	---	---	Res	Res	---	Res	Res	---	0.015	0.07	---	---	---	---
59	Sum of diphylamine and diphenylnitrosamine	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	TCLP Extract																							
	**********																							
1	Antimony	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2	Arsenic	---	---	---	---	---	---	---	---	---	---	---	0.004	0.004	0.004	0.004	0.004	---	---	---	---	---	---	---
3	Barium	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4	Cadmium	0.066	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.066	0.066	---	---
5	Chromium (total)	5.2	---	---	---	---	---	5.2	---	---	---	---	1.7	1.7	1.7	1.7	1.7	0.094	0.094	---	5.2	5.2	---	---
6	Cyanide	Res	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
7	Lead	0.51	0.51	---	---	---	---	---	---	---	---	0.18	---	---	---	---	---	0.37	0.37	0.51	0.51	0.51	---	---
8	Mercury	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
9	Nickel	0.32	---	---	---	---	---	0.32	---	---	---	---	0.048	0.048	0.048	0.048	0.048	---	---	---	0.32	0.32	---	---
10	Selenium	---	---	---	---	---	---	---	---	---	---	---	0.025	0.025	0.025	0.025	0.025	---	---	---	---	---	---	---
11	Silver	0.072	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12	Vanadium	---	---	---	---	---	---	---	---	---	---	---	0.018	0.018	0.018	0.018	0.018	---	---	---	---	---	---	---

TABLE III

SOFT HAMMER WASTE -

The following waste codes are subject to soft hammer provisions and are acceptable (based on sample review) to ThermalKEM. EPA has set treatment requirements. The following wastes are banned from land disposal effective August 8, 1988.

Waste Code	Waste Description
	261.31 Wastes
F007	Spent cyanide plating bath solutions from electroplating operations
F008	Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum
	261.32 Wastes
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin
K035	Wastewater treatment sludges generated in the production of creosote
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds
K085	Distillation of fractionation column bottoms from the production of chlorobenzenes
	261.33 (e) Wastes
P001	Warfarin, when present at concentration greater than 0.3%
P004	Aldrin
P005	Allyl alcohol
P010	Arsenic acid
P011	Arsenic (V) oxide

P012	Arsenic (III) oxide
P016	Bis-(chloromethyl) ether
P018	Brucine
P020	Dinoseb
P030	Soluble cyanide salts not elsewhere specified
P037	Dieldrin
P039	Disulfoton
P041	Diethyl-p-nitrophenyl phosphate
P048	2,4-Dinitrophenol
P050	Endosulfan
P059	Heptachlor
P068	Methyl Hydrazin
P069	Methyllactonitrile
P070	Aldicarb
P071	Methyl parathion
P082	N-Nitrosodimethylamine
P084	N-Nitrosomethylvinylamine
P089	Parathion
P094	Phorate
P097	Pamphur
P102	Propargyl alcohol
P108	Strychnine and salts
P110	Tetraethyl lead
P123	Toxaphene

261.33 (f) Wastes

U007	Acrylamide
U009	Acrylonitrile
U010	Mitomycin C
U012	Aniline
U016	benz(c)acridine
U018	Benz(a)anthracene
U019	Benzene
U022	Benzo(a)pyrene
U029	Methyl bromide
U031	n-Butanol
U036	Chlordane technical
U037	Chlorobenzene
U041	n-Chloro-2,3-epoxypropane
U043	Vinyl chloride
U044	Chloroform
U046	Chloromethyl methyl ether
U050	Chrysene
U051	Creosole
U053	Crotonaldehyde
U061	DDT
U063	Dibenzo (a.h) anthracene
U064	1.2.7.8 Dibenzopyrene
U066	Dibromo-3-chloropropane 1.2-
U067	Ethylene dibromide
U074	1.4-Dichloro-2-butene
U077	Ethane.1.2-dichloro-
U078	Dichloroethylene.1.1-
U086	N.N. Diethylhydrazine

U089	Diethylstilbestrol
U103	Dimethyl sulfate
U105	2,4-Dinitrotoluene
U108	Dioxane,1.4-
U115	Ethylene oxide
U122	Formaldehyde
U124	Furan
U129	Lindane
U130	Hexachlorocyclopentadiene
U137	Indeno(1.2.3-cd)pyrene
U154	Methanol
U155	Methapyrilene
U157	3-Methylcholanthrene
U158	4,4-Methylene-bis-(2-chloroaniline)
U159	Methyl ethyl ketone
U171	Nitropropane,2-
U177	N-Nitroso-N-methylurea
U180	N-Nitrosopyrrolidine
U185	Pentachloronitrobenzene
U188	Phenol
U192	Pronamide
U200	Reserpine
U209	Tetrachloroethane.1.1.2.2-
U210	Tetrachloroethylene
U211	Carbon tetrachloride
U219	Thiourea
U220	Toluene
U221	Toluenediamine
U223	Toluene diisocyanate
U226	Methylchloroform
U227	Trichloroethane.1.1.2-
U228	Trichloroethylene
U237	Uracil mustard
U238	Ethyl carbamate

F006 AND K062 RESTRICTIONS

This restricted waste category is banned from land disposal under 40 CFR 268.30 and is subject to one or more treatment standards under 40 CFR 268 D. Complete information in the following Table IV by circling the appropriate treatment standard(s).

TABLE IV

Treatment Standard For First Third
Land Disposal Restriction For Wastes
Acceptable To CyanoKEM

Constituent	Concentration Standard in Extract, mg/l	
	F006	K062
1. Cadmium	0.066	----
2. Chromium	5.2	0.094
3. Lead	0.51	0.37
4. Nickel	0.32	----
5. Silver	0.072	----

TABLE V

SOFT HAMMER WASTE -

The following waste codes are subject to soft hammer provisions and are acceptable to CyanoKEM. EPA has set treatment requirements. The following wastes are banned from land disposal effective August 8, 1988.

Waste Code	Waste Description
	261.31 Wastes
F007	Spent cyanide plating bath solutions from electroplating operations
F008	Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum
	261.33 (e) Wastes
P010	Arsenic acid
P011	Arsenic (V) oxide
P012	Arsenic (III) oxide
P030	Soluble cyanide salts not elsewhere specified
P063	Hydrogen cyanide
	261.33 (f) Wastes
U134	Hydrofluoric acid